

What role can surveys play in behavioural science?

Thomas J. Leeper

Department of Government
London School of Economics and Political Science

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LSE Executive MSc Behavioural Science

About Me

- Associate Professor at LSE
- PhD from Northwestern University (2012)
- Research interests
 - Political psychology
 - Survey-experimental methods
 - Reproducible computational social science

Attitudes vs. Behaviours

Measurement Problems

Behavioural Measures

Conclusion

Premise

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- A survey is any questionnaire-based method of data collection in which most data is produced through “self-reports”

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- A survey is any questionnaire-based method of data collection in which most data is produced through “self-reports”
- Surveys are obviously useful for studying *characteristics, beliefs, and attitudes*
- Surveys are not often seen as useful for studying *behaviour*

Goals for today

By the end of today you should be able to:

- 1 Describe the relationship between (and distinction between) attitudes and behaviours
- 2 Identify the limitations of survey measures of past behaviours and behavioural intentions
- 3 Evaluate possible strategies for improving behavioural self-reporting
- 4 Apply direct, survey-based measures of behaviour to your own work

Attitudes vs. Behaviours

Measurement Problems

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- 1 Attitudes vs. Behaviours
- 2 Problems with Behavioural Self-Reports
- 3 Credible Behavioural Measures in Surveys
- 4 Conclusion

1 Attitudes vs. Behaviours

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Definitions

- Attitude: “a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour”¹

- Behavior: “The actions by which an organism adjusts to its environment.” (APA)

¹Eagly and Chaiken, 1998, “Attitude Structure and Function.” *Handbook of Social Psychology*, p.269.

How many of you feel that it is important for citizens to vote?

How many of you feel that it is important for citizens to vote?

How many of you voted in the *most recent local election* in which you were eligible to cast a ballot?

What are some behaviours that practising behavioural scientists might care about?
(Think about any domain or context.)

Why should behavioural scientists care about attitudes?

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- Care about attitudes per se, e.g.:
 - To represent public opinions in policymaking
 - To assess sentiment or satisfaction
 - To try to change those views
- Care about attitudes because they induce *behaviour*
- Attitudes are relatively easy to measure on questionnaire/survey methods but behaviours not so much

From attitudes to behaviours?

Early psychology research showed limited connection between attitudes and associated behaviours

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- *Theory of Planned Behavior* (Ajzen)
 - From *Theory of Reasoned Action* (Ajzen & Fishbein)
 - Attitudes interact with both subjective norms and “perceived behavioural control”

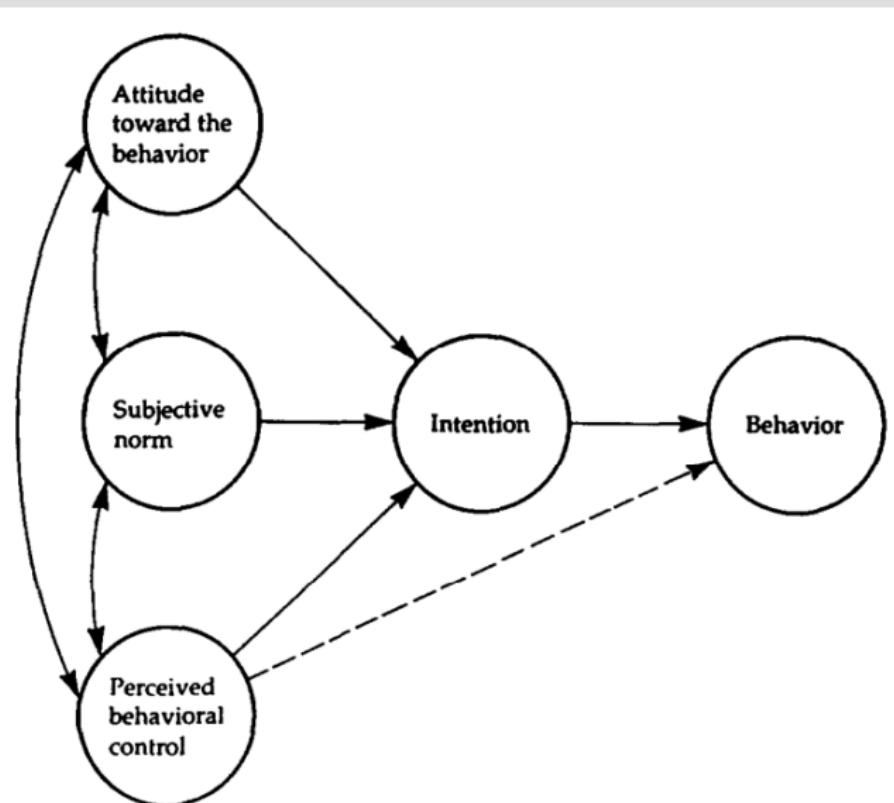


FIG. 1. Theory of planned behavior.

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- *Theory of Planned Behavior* (Ajzen)
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 - Attitudes interact with both subjective norms and “perceived behavioural control”
- Other traditions
 - *MODE* (Fazio), a “dual process” framework
 - *Health Belief Model*
 - Theories of habit
 - Cost-benefit analysis

From attitudes to behaviours?

- Basically, there are many reasons why attitudes do not correlate very highly with behaviours
- People may also have attitudes toward the behaviours themselves (e.g., wanting to act on attitude but disfavouring a given action)
- Attitude strength is possibly critical (but conceptually murky)

Behaviour Change without Attitude Change

- Recent behavioural science research suggests some behaviours can change dramatically without changing attitudes
 - Nudges related to charitable donations
 - Increasing vaccination even as attitudes toward vaccination become more negative
- If we want to study *behaviour* per se, maybe we don't need to know much about attitudes!

1 Attitudes vs. Behaviours

2 Problems with Behavioural Self-Reports

3 Credible Behavioural Measures in Surveys

4 Conclusion

Some Common Wisdom

Surveys are a good instrument for measuring
and studying attitudes!

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But attitudes are not the same as behaviours!

Some Common Wisdom

Surveys are a good instrument for measuring
and studying attitudes!

But attitudes are not the same as behaviours!

Therefore, surveys are a poor instrument for
measuring and studying behaviours!

Concern 1: Self-reports are not behaviours

- A survey questionnaire measures “responses” expressed in words, numbers, and other trivial actions
- These are obviously not behaviours but reports of behaviours.

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- A survey questionnaire measures “responses” expressed in words, numbers, and other trivial actions
- These are obviously not behaviours but reports of behaviours.
- Questionnaires can, however, measure *behavioural intentions* and *self-reported past behaviour*

Concern 2: Behavioural intentions are poor predictors of behaviour

- All three models of attitude-behaviour linkage suggest the effect of attitudes on behaviours is conditional
 - TRA: Depends on subjective norms
 - TPB: Also depends on behavioural control
 - MODE: Also depends on motivation and opportunity

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 - TRA: Depends on subjective norms
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- Behavioural intention questions do not effectively measure future behaviour
- Questionnaires can measure *past behaviour*

Concern 3: Survey measures of past behaviour lack validity

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- Many different, imperfect operationalizations:
 - “Have you ever...?”
 - “When was the last time...?”
 - “How many times in the past <PERIOD> have you...?”
 - “How many <TIME UNIT> in the past <PERIOD> have you spent...?”

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 - “When was the last time...?”
 - “How many times in the past <PERIOD> have you...?”
 - “How many <TIME UNIT> in the past <PERIOD> have you spent...?”
- Numerous issues emerge here!

Problems with self-reports

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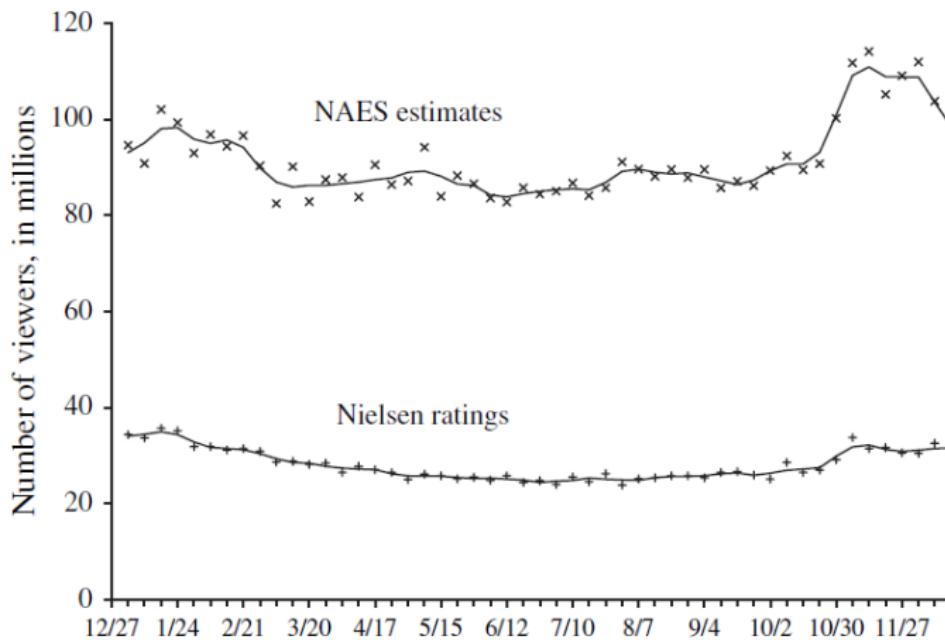
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- Social desirability biases

Problems with self-reports

Rarely correspond to direct “true” measures behaviour. Why?

- Recall failure and false memories
- Reference period ambiguity and lags
- Recency and primacy biases
- Social desirability biases
- Construct invalidity

Example: Prior (2009)²



²Prior. 2009. "Improving Media Effects Research through Better Measurement of News Exposure." *Journal of Politics* 71(3): 893–908. doi:10.1017/S0022381609090781

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- Prior argues that recall of hours television watched and specific programmes watched is too cognitively challenging

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Example: Prior (2009)²

- Prior argues that recall of hours television watched and specific programmes watched is too cognitively challenging
- Suggests using population benchmarks to provide “anchoring”

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Example: Holbrook & Krosnick (2016)³

- People massively overreport voting in elections

³Holbrook & Krosnick. 2013. "A New Question Sequence to Measure Voter Turnout in Telephone Surveys." *Public Opinion Quarterly* 77: 106–23. doi:10.1093/poq/nfs061

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- People massively overreport voting in elections
- Past experiments show that giving respondents excuses for why others may not have voted lower reported turnout but not fully

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Example: Holbrook & Krosnick (2016)³

- People massively overreport voting in elections
- Past experiments show that giving respondents excuses for why others may not have voted lower reported turnout but not fully
- Their design does two things:
 - Measures self-reported past intention
 - Primes respondents with those excuses and asks for how those excuses might have led them to deviate from their intentions

³Holbrook & Krosnick. 2013. "A New Question Sequence to Measure Voter Turnout in Telephone Surveys." *Public Opinion Quarterly* 77: 106–23. doi:10.1093/poq/nfs061

Some provisional conclusions

- 1 It is hard to write construct valid measures of past behaviour
- 2 Behavioural intentions are poorly predictive of future behaviour
- 3 So, behavioural self-reports are very problematic!

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- 1 It is hard to write construct valid measures of past behaviour
- 2 Behavioural intentions are poorly predictive of future behaviour
- 3 So, behavioural self-reports are very problematic!
- 4 Thesis: focus on behaviours that can be measured within a survey context!

Abandon behavioural self-reports?

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Sometimes we have no choice but to rely on a self-reported measure of past behaviour or future behavioural intentions!

Improving Self-Reports

⁴Delavande and Manski. 2010. "Probabilistic Polling and Voting in the 2008 Presidential Election." *Public Opinion Quarterly* 74(3): 433–59.

Improving Self-Reports

- Use unambiguous, short, and recent reference periods

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Improving Self-Reports

- Use unambiguous, short, and recent reference periods
- Provide population benchmarks
- Excuse socially undesirable behaviour
- Use alternative survey modes to avoid social desirability
- Try probabilistic measures of intention⁴
- Validate self-reports against actual behaviour where possible

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Behavioural measures

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- 1 Behavioural measures that provide survey paradata
- 2 Behavioural measures that operationalize attitudes
- 3 Behavioural measures that operationalize behaviours

Behavioural Measures for Paradata

Why?

- Respondents use of the survey tells us something meaningful about their behaviour

Behavioural Measures for Paradata

Why?

- Respondents use of the survey tells us something meaningful about their behaviour

What?

Behavioural Measures for Paradata

Why?

- Respondents use of the survey tells us something meaningful about their behaviour

What?

- Nonresponse

Behavioural Measures for Paradata

Why?

- Respondents use of the survey tells us something meaningful about their behaviour

What?

- Nonresponse
- Response latencies

Behavioural Measures for Paradata

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- Respondents use of the survey tells us something meaningful about their behaviour

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- Answer switching

Behavioural Measures for Paradata

Why?

- Respondents use of the survey tells us something meaningful about their behaviour

What?

- Nonresponse
- Response latencies
- Reading times
- Answer switching
- Eye tracking

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Behavioural Measures for Paradata

Why?

- Respondents use of the survey tells us something meaningful about their behaviour

What?

- Nonresponse
- Response latencies
- Reading times
- Answer switching
- Eye tracking
- Mouse tracking
- Smartphone metadata

Behavioural Measures for Attitudes

Why?

- Attitudinal self-reports might be “cheap talk”

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Behavioural Measures for Attitudes

Why?

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What?

- Implicit Association Test

Behavioural Measures for Attitudes

Why?

- Attitudinal self-reports might be “cheap talk”

What?

- Implicit Association Test
- Incentivized Survey questions

Implicit Association Test

<https://implicit.harvard.edu/>

Press "E" for

European Americans

Press "I" for

African Americans



If you make a mistake, a red X will appear. Press the other key to continue.

Press "E" for

Bad

or

European Americans

Press "I" for

Good

or

African Americans

Part 3 of 7

Use the **E** key for **European Americans** and for **Bad**.

Use the **I** key for **African Americans** and for **Good**.

Each item belongs to only one category.

If you make a mistake, a red **X** will appear. Press the other key to continue.
Go as fast as you can while being accurate.

Press the **space bar** when you are ready to start.

Press "E" for

Bad

or

European Americans

Press "I" for

Good

or

African Americans



If you make a mistake, a red X will appear. Press the other key to continue.

Example 3: Incentivised Survey Questions

Definitions:

- A survey question is just a self-report
- An *incentivized* survey question attached financial gains or losses to the answer options

Mark your gamble selection with an X in the last column across from your preferred gamble.

Gamble	Event	Payoff	Probabilities	Your Selection
1	A	\$10	50%	
	B	\$10	50%	
2	A	\$18	50%	
	B	\$6	50%	
3	A	\$26	50%	
	B	\$2	50%	
4	A	\$34	50%	
	B	-\$2	50%	
5	A	\$42	50%	
	B	-\$6	50%	

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Paradigm could be applied to any measure of behavioural intentions to avoid cheap talk.

Behavioural Measures for Behaviour

Why?

- We want to observe or affect behaviour (e.g., in an experiment)

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Why?

- We want to observe or affect behaviour (e.g., in an experiment)

What?

- Directly measure or initiate a direct measure of a behaviour
- May be measured by something that occurs within the confines of the survey or something outside of the survey

Example 1: Active Information Choice

⁵Guess, AM. 2015. "Measure for Measure." *Political Analysis* 23: 59–75. doi:10.1093/pan/mpu010

⁶Leeper, TJ. 2014. "The Informational Basis for Mass Polarization." *Public Opinion Quarterly* 78(1): 27–46. doi:10.1093/poq/nft045

⁷Arceneaux, K & Johnson, M. 2012. *Changing Minds or Changign Channels*. Chicago: The University of Chicago Press.

⁸<https://dpte.polisci.uiowa.edu/dpte/>

Example 1: Active Information Choice

- “Followed link” identification⁵

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Remember, please check **ALL** rows containing any links shown in **PURPLE**. Leave all other rows unchecked.

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Reports From the Hive,
Where the Swarm
Concurs

Pay for Performance
Improves Quality of
Health Care Through
Collaborative Medicine

Why are 3-D Movies so
Bad?

Physicians Group Says
Quality Will Improve
Under Outcome-based
Payments

Council Is Set to
Consider Increases in
Hotel and Property Taxes

Doctors Can Work
Together to Improve
Patient Health, But Need
Appropriate Incentives

Patients Better Served
When Providers Paid for
Health Outcomes

Improving America's
Health Requires Provider
Incentives, Not 'Fee-for-
Service'

When Paid for Outcomes,
Doctors Have Little
Reason to Treat Highest
Risk Patients

A Bowl of Chili with
Bragging Rights

SEC Vote Requires
Business Filings to Add
Environmental Risks to
Bottom Line

Anatomy of a Tear-
Jerker

Spammers Use the
Human Touch to Avoid
CAPTCHA

USDA Raises Corn
Export Outlook

Will a Standardized
System for Verifying
Web Identity Ever
Catch On?

Wellness, Rather
Than Illness, Is Focus
Under Outcome-
Accountable Care

Gender Differences in
Education Need
Innovative Solution

Heart Attack While
Dining at Heart Attack
Grill in Las Vegas

Out of the O.R., T.R.
Knight Back Onto the
Stage

Paying Doctors Based
on Outcomes Will
Lead to Rationing

Example 1: Active Information Choice

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- “Followed link” identification⁵
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- Dynamic Process Tracing Environment⁸

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Stage: Primary Election

Sub-stage: Early Primary

Time Remaining: 21:26
6:46

Andy Fischer's Political Experience

DELEGATE COUNT, END OF FEBRUARY

Republican Primary

Sam Green's Mother provides a Childhood Anecdote

Dana Turner's Picture

Terry Davis's Current Job Performance

Taylor Harris's Age

Iowa General Election

January, 2008

Time remaining: 5:23

Hillary Clinton wins in South Dakota!



▶ ⏸ ⏹ 0:00 / 0:06

Stage: Pre-Election

Sub-stage: PE-2

Time Remaining: 0:00

0:00

Question 1 of 1

Primary elections require voters to choose the party they want to vote in. Before we begin the Iowa primary, please choose either the Republican or Democrat Primary. You will see candidates for both parties but will be only able to vote in the party you choose.

- Republican
- Democrat

Select an answer, then click the End button to end the questionnaire.

End

Example 2: Sign-up/Enrolment

An extension of information choice behaviour would be explicit engagement in other kinds of (small) behaviours, such as:

- Entering an email address to receive information or join a mailing list^{9 10}
- Signing up for an appointment or further interaction

⁹Leeper, T.J. 2017. "How Does Treatment Self-Selection Affect Inferences About Political Communication?" *Journal of Experimental Political Science*: In press.

¹⁰Bolsen, Druckman, & Cook. 2014. "Communication and Collective Actions." *Journal of Experimental Political Science* 1(1): 24–38. doi:10.1017/xps.2014.2

Example 3: Purchasing Decisions

Common ways to study purchasing behaviour include:

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Common ways to study purchasing behaviour include:

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- Retrospective and prospective self-reports

Example 3: Purchasing Decisions

Common ways to study purchasing behaviour include:

- Direct attitudinal questions
- Retrospective and prospective self-reports
- Conjoint experiments

Please read the descriptions of the potential immigrants carefully. Then, please indicate which of the two immigrants you would personally prefer to see admitted to the United States.

	Immigrant 1	Immigrant 2
Prior Trips to the U.S.	Entered the U.S. once before on a tourist visa	Entered the U.S. once before on a tourist visa
Reason for Application	Reunite with family members already in U.S.	Reunite with family members already in U.S.
Country of Origin	Mexico	Iraq
Language Skills	During admission interview, this applicant spoke fluent English	During admission interview, this applicant spoke fluent English
Profession	Child care provider	Teacher
Job Experience	One to two years of job training and experience	Three to five years of job training and experience
Employment Plans	Does not have a contract with a U.S. employer but has done job interviews	Will look for work after arriving in the U.S.
Education Level	Equivalent to completing two years of college in the U.S.	Equivalent to completing a college degree in the U.S.
Gender	Female	Male

Immigrant 1 Immigrant 2

If you had to choose between them, which of these two immigrants should be given priority to come to the United States to live?

On a scale from 1 to 7, where 1 indicates that the United States should absolutely not admit the immigrant and 7 indicates that the United States should definitely admit the immigrant, how would you rate immigrant 1?

Absolutely Not Admit

Definitely Admit

1	2	3	4	5	6	7
●	●	●	●	●	●	●

YouGov

We are interested in your opinions about the negotiations between Britain and the European Union regarding Britain's exit from the EU and future relationship with the EU.

Please look carefully at these two possible outcomes:

	Outcome A	Outcome B
Britain's one-off payment to the EU to settle outstanding commitments	No payment	£10 billion
When this will come into effect	2025	2023
Border checks between Northern Ireland and the Republic of Ireland	No passport checks and no customs checks	Full passport and customs checks
EU's legal authority in Britain	Britain adopts some EU laws but is not subject to decisions by the European Court of Justice	Britain is subject to all EU laws and all decisions by the European Court of Justice
Britain's future payments to the EU budget to access science and regional development programmes	£1 billion per year for access	£1 billion per year for access
Trade agreement with the EU	Many administrative barriers to trade in goods and services and 5% average tariff on goods	Few administrative barriers to trade in goods and services and 2.5% average tariff on goods
Policy on immigration from the EU	Full control over EU immigration and little to no EU immigration	Some control over EU immigration and lower levels of EU immigration than now
Future rights of current EU nationals in Britain and British nationals in the EU	All can stay indefinitely	Must apply for 'leave to remain' under the same terms as people from non-EU countries

Which of these two outcomes do you prefer?

- Outcome A
- Outcome B

Example 3: Purchasing Decisions

Common ways to study purchasing behaviour include:

- Direct attitudinal questions
- Retrospective and prospective self-reports
- Conjoint experiments

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Another way is embedding a purchase in a survey.¹¹

¹¹Bolsen, T. 2011. "A Lightbulb Goes On." *Political Behavior* 35(1): 1–20. 10.1007/s11109-011-9186-5



Example 4: Donations

- Miller and Krosnick¹¹ asked for charitable donations via cheque directly as part of a paper-and-pencil survey

¹¹Miller, Krosnick, & Lowe. N.d. "The Impact of Policy Change Threat on Financial Contributions to Interest Groups." Working paper.

¹²Klar & Piston. 2015. "The influence of competing organisational appeals on individual donations." *Journal of Public Policy* 35(2): 171–91. doi:10.1017/S0143814X15000203

Example 4: Donations

- Miller and Krosnick¹¹ asked for charitable donations via cheque directly as part of a paper-and-pencil survey
- Klar and Piston¹² offered respondents a survey incentive up-front for participation and then later offered them a chance to donate (a portion of payment) to a charity

¹¹Miller, Krosnick, & Lowe. N.d. "The Impact of Policy Change Threat on Financial Contributions to Interest Groups." Working paper.

¹²Klar & Piston. 2015. "The influence of competing organisational appeals on individual donations." *Journal of Public Policy* 35(2): 171–91. doi:10.1017/S0143814X15000203

Example 5: Web Tracking Data

- 1 Active installation of a tracking app, such as YouGov Pulse^{13 14}
- 2 Post-hoc collection of web history files using something like Web Historian¹⁵

¹³<https://yougov.co.uk/find-solutions/profiles/pulse/>

¹⁴Guess, AM. N.d. "Media Choice and Moderation." Working paper, <https://dl.dropboxusercontent.com/u/663930/GuessJMP.pdf>.

¹⁵<http://www.webhistorian.org/>

Other Possibilities

¹⁶Mao, Mason, Suri, Watts. 2016. "An Experimental Study of Team Size and Performance on a Complex Task." *PLoS ONE* 11(4): e0153048. doi:10.1371/journal.pone.0153048

Other Possibilities

- Coordination tasks
 - Synchronous group tasks¹⁶
 - Game play
 - Simulations

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PHILIPPINES

Event Records | **Map** | **Documents**

Notifications - Help - **TaskList** **Clusters** **McDonalds** **Philippines** **superbands** **superbands**

Chat Room: **mapping chat** In room: **coole_hans012** **McDonalds** **superbands123** **Alderson** **coole_hans012** **coole_hans012** **superbands** **superbands123** **Magandino** **superbands** **superbands123** **coole_hans012**

mapping chat

Andy741 **superbands123** I know, some say damage to an area though along with were it was located.

Magandino: It helps to know what the storm is doing

Magandino: Isnt this post and pre crisis

coole123: That would be relevant then. **Andy741**

coole123: The storm is over, so all the tweets that give storm location and damage messages are irrelevant.

Magandino: If the storm has passed or hasn't is relevant

magandino: All good comments for the requesters after octogenarian **coole123** is in town

Magandino: I think its good to track the storm and its damage

coole123: perhaps, but our task is to only classify and locate damage that has already happened, not track movement of storm clouds. We also have to many empty events with nothing happening on the page

Celso: wrt year, can't delete since people are editing

superbands123: Shouldn't we have more chatrooms for specific events and regions etc? This is quite confusing.

Magandino: We are still getting organized

Andy741: Lots of things to sort through, just takes time

coole123: as we get more organized, as we get more organized of the tweets, the more organized it will get, we can always combine events later. I think it's most important to sort through tweets

Magandino: I Agree

McDonalds: All I've been doing is sorting through tweets to try and clean it up a bit. Hopefully I'll make it easier in the end

Celso: so delete all tweets tracking storm? I can get that on that lol if needed

123.14, 9.64

Other Possibilities

- Coordination tasks
 - Synchronous group tasks¹⁶
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Other Possibilities

- Coordination tasks
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Other Possibilities

- Coordination tasks
 - Synchronous group tasks¹⁶
 - Game play
 - Simulations
- Offering incentives to perform future behaviour (tracked elsewhere)
- OAuth/API integrations w/ other platforms
 - Merging website usage data w/ survey data
 - Treating website sign-up or usage as behavioural outcomes
 - Linking with smartphone metadata

¹⁶Mao, Mason, Suri, Watts. 2016. "An Experimental Study of Team Size and Performance on a Complex Task." *PLoS ONE* 11(4): e0153048. doi:10.1371/journal.pone.0153048

With a partner, brainstorm how one or more these behavioural measures might be applied to a survey data collection relevant to your own work or your organisation.

- 1 Attitudes vs. Behaviours**
- 2 Problems with Behavioural Self-Reports**
- 3 Credible Behavioural Measures in Surveys**
- 4 Conclusion**

Some principles for survey measures of behaviour

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- 1 Know why you are collecting a behavioural measure!
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- 3 Be creative! Recognise possibilities and limitations of any given survey mode.
- 4 Validate, validate, validate!

Attitudes vs. Behaviours

Measurement Problems

Behavioural Measures

Conclusion

To Sum Up...

- Surveys are well-designed to measure current characteristics, beliefs, and attitudes
- Self-report measures of behaviour have many problems
- Surveys can incorporate direct measures of respondent behaviour
- We're still experimenting, so more research is needed on validity of such measures

Thanks!

I will be around for questions.
Don't hesitate to be in touch later on:

Email: t.leeper@lse.ac.uk

Twitter: @thosjleeper

